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Foreign Price Trends for Patented Medicines (2002)



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Table of Contents

Highlights	4
1. Purpose	5
2. Methodology	5
3. Results: Price Change	8
4. Results: Price Dispersion	9
5. Summary and Conclusions	10
APPENDIX 1	15

Tables

Table 1: Annual Percent Change in Patented Drug Prices, 1988-2000	12
Table 2: Annual Percent Change in Relative Consumer Prices of Patented Drug, 1988-2000	13
Table 3a Aggregate Measures of International Price Dispersion: 1991, 1996, 2001	13
Table 3b International Price Dispersion, Percentile Distributions: 1991, 1996, 2001	14
Table A1.1: Patented Medicines Price Index, France	15
Table A1.2: Patented Medicines Price Index, Germany	16
Table A1.3: Patented Medicines Price Index, Italy	16
Table A1.4: Patented Medicines Price Index, Sweden	17
Table A1.5: Patented Medicines Price Index, Switzerland	17
Table A1.6: Patented Medicines Price Index, UK	18
Table A1.7: Patented Medicines Price Index, US	18
Table A1.8: Patented Medicines Price Index, US (FSS)	19
Table A2.1: Distribution of Price Changes, France	20
Table A2.2: Distribution of Price Changes, Germany	20
Table A2.3: Distribution of Price Changes, Italy	21
Table A2.4: Distribution of Price Changes, Sweden	21
Table A2.5: Distribution of Price Changes, Switzerland	22
Table A2.6: Distribution of Price Changes, UK	22
Table A2.7: Distribution of Price Changes, US	23
Table A2.8: Distribution of Price Changes, US (FSS)	23

Figures

Figure 1: Average Annual Percent Change, Patented Drug Prices, 1996-2001 11

Highlights

Foreign Price Trends for Patented Medicines

- This paper reports on trends in the prices of patented drugs observed in the seven countries the Patented Medicine Prices Review Board (PMPRB) includes in its international price comparisons.
- With the notable exception of the United States (US), all countries experienced only modest overall increases in patented drug prices over the period 1988 to 2001.
- The average rate of increase in Canadian patented drugs prices, less than 1% per year on average over this period, falls squarely within the range of the six European countries considered in the analysis.
- In contrast, prices in the US increased at an average annual rate of more than 5%.
- Increases in patented drug prices have been less than increases in the Consumer Price Index (CPI) in all countries except the US. Adjusting for inflation, patented drug prices in Canada declined at an average annual rate of -1.8% from 1988 to 2000, which is in line with results obtained for the six European countries.
- The study also examines the variation of patented drug prices across countries. All measures indicate the existence of substantial international price variation, but give no evidence that the extent of this variation has notably changed over the last decade.
- The study relies on data filed by pharmaceutical patentees with the PMPRB giving ex-factory prices in each of the countries. It uses the PMPRB's standard Laspeyres price index methodology. This methodology reflects changes in the prices of drugs already on the market, but does not measure impacts on the cost of pharmaceutical therapy caused by the introduction of new drugs.

1. PURPOSE

The PMPRB regularly reports on trends in the Canadian prices of patented drug products.¹ It also reports on the overall ratio of Canadian prices to foreign prices.² Data submitted to the PMPRB also allows it to assess trends in foreign prices of patented drugs. The present paper represents an initial examination of these trends.

Section 3 gives annual rates of change in the prices of drug products for the set of comparator countries the PMPRB is required to consider in carrying out its regulatory and reporting functions. All of these countries except the US control drug prices in some manner. Have these various regulatory regimes produced similar price trends? Has the exceptional position of the US been reflected in price changes observed in that country? Have Canadian price trends been consistent with those observed in other markets with different approaches to price regulation?

International comparisons of changes in product prices have only limited analytical significance in their own right. In particular, changes in patented drug prices cannot by themselves tell us whether consumers are paying more or less for patented drugs relative to the other goods and services they purchase or the incomes they receive. An across-the-board increase of 10 percent in patented drug prices is likely to raise much less concern in an economy with a 20 percent annual rate of general inflation than an economy in which the overall price level is stable. To address this matter requires an analysis of movements in patented drug prices relative to national price levels. To this end, Section 3 also examines the recent behavior of drug prices adjusted for changes in the overall level of consumer prices.

The emergence of parallel trade in European drug markets and the concomitant decline of market segmentation suggest an international convergence of drug prices.³ Section 4 examines various measures of international price dispersion to determine whether this in fact has occurred.

2. METHODOLOGY

Countries

The *Patent Act* (Act) mandates the PMPRB to consider seven countries in determining whether the price of a patented drug in Canada is excessive. These countries are: France, Germany, Italy, Sweden, Switzerland, the UK and the US. Patented drug prices in these countries are considered in this analysis.

¹ See, for example, PMPRB, *Annual Report 2001*; PMPRB, *Trends in Patented Drug Prices*, 1998.

² *ibid*, p. 21.

³ Boer, T. et al, "Why Differential Pricing Works For Everyone", *Scrip Magazine*, December, 1999.

Note that two sets of price change results are provided for the US. Results labeled “US” are based on a simple average of publicly-available ex-factory prices charged to customers in the wholesale, pharmacy and hospital sectors, as reported to the PMPRB by manufacturers. Results labeled “US (FSS)” are based on prices obtained as a simple average of reported US prices and the formulary prices listed on the US Federal Supply Schedule (FSS). The US Department of Veteran Affairs (DVA) began publishing the FSS formulary prices in November 1997. The PMPRB has required patentees to file the FSS price since 1998, and began incorporating this price into the calculation of the average US price used for international comparisons in 2000.⁴

Price Indices

Section 3 presents rates of price change among patented drugs in each country. These results were produced by applying the price index methodology the PMPRB uses to produce its Patented Medicines Price Index (PMPI).⁵

The PMPI is a chained Laspeyres price index. A Laspeyres price index measures the cost of buying a particular set (or “basket”) of goods in a given (or “current”) period relative to the cost of purchasing the same basket in an earlier (or “base”) period. The basket of goods is usually chosen to represent consumption patterns in the base period.

The “period” used in calculating the PMPI is the six months corresponding to either the first or last half of the year. The basket of drug products is updated every period. To be included in the PMPI basket for a given period a drug product must have been patented and sold in Canada in both that period and the preceding period (since the latter serves as the base-period).

To calculate the PMPI for a given period involves several steps. First, a set of revenue-weights for individual drug products is constructed for the base-period using sales information provided by patentees. A corresponding set of price-change factors is obtained by taking the ratios of current-period prices to base-period prices. An aggregate price-change factor is then obtained as a revenue-weighted average of the individual price-change factors. The aggregate price-change factor is multiplied by the previous period’s value of the price index to arrive at the price index value for the current period.⁶ Finally, the price index values obtained for each six-month period within a year are averaged to produce the PMPI value for that year.

The foreign price index results reported here were obtained using the same procedure, with foreign prices used instead of Canadian prices.

⁴ PMPRB, *NEWSletter*, January 2000.

⁵ For more on the PMPI see PMPRB, *A Description of the Laspeyres Methodology Used to Construct the Patented Medicine Price Index*, July 1997, revised June 2000.

⁶ By construction, this value will embody increase factors calculated for all periods up to and including the current period. This process of building up a price index through multiplicative compounding of increase factors is called “chaining” in price index terminology. It provides a simple and intuitively appealing way of connecting price index values obtained using different base period baskets.

Data Sources

Information on Canadian revenue-weights comes from the PMPRB's "BLOCK 4" database. Manufacturers are required by law to report to the PMPRB on all sales of patented pharmaceuticals to Canadian wholesalers, pharmacies, hospitals and other customers. These sales data are at ex-factory prices, and net of any discounts or other concessions made to purchasers. BLOCK 4 contains the transactions data provided to the PMPRB by manufacturers.

Information on foreign prices comes from the PMPRB's "BLOCK 5" database. Manufacturers are required by law to report to the PMPRB on publicly-available ex-factory prices they obtain in other countries for any patented drug products marketed in Canada. BLOCK 5 contains the foreign price information provided to the PMPRB by manufacturers.

To examine price dispersion meaningfully foreign prices must be represented in the same currency. Where necessary, foreign prices have been converted to their Canadian-dollar equivalents using the 36-month moving-average market exchange rates the PMPRB normally uses for currency conversions.⁷

In Section 3 changes in patented drug prices are compared to movements in national price levels using the Consumer Price Index (CPI) for each country. Rates of CPI-inflation used for this purpose were obtained from the OECD.⁸ These are official CPI-inflation rates reported by the national statistical agency in each country.

Unit of Analysis

All calculations reported here were performed in the first instance at the level of the Health Canada Drug Information Number (DIN).

Multiple Prices

The BLOCK 5 database often contains several prices for a given DIN, period and country. These prices are associated with different customer-classes and package sizes. The DIN-level prices used in the present analysis are simple "price per pill" averages taken across package sizes and customer classes. These are the same prices the PMPRB normally uses in comparing Canadian prices to foreign prices.

Drugs Included

Some products appearing in BLOCK 4 are not covered by the results simply because there was no corresponding price in BLOCK 5 for the country and period in question.

⁷ For example, the PMPRB uses this moving average in conducting the International Price Comparison Test, one of the standards defined in its Excessive Price Guidelines. The 36-month methodology was adopted in 1993 following consultation with stakeholders. PMPRB, *Compendium of Guidelines, Policies and Procedures*, June, 1994.

⁸ OECD, *Economic Outlook*, Vol. 2001/2, No. 70, December, 2001.

The extent of coverage varies by country and period. Coverage seldom falls below 50 percent of BLOCK 4 net revenues, and is typically in the range of 50-70 percent. (See Column [3] of Table A1 in the Appendix for the number of DINs and proportion of BLOCK 4 net revenue included in the calculation of price index values for each country and year.)

Weighting

As noted above, the PMPI methodology requires that DIN-level price-change factors be aggregated across products using weights representing Canadian base-period net revenue patterns. This is an important element of this analysis. Results reported by Danzon⁹ suggest the choice of weighting scheme can critically influence the outcome of international price comparisons. It is quite possible using something other than Canadian net revenue weights might produce substantially different price index results.

However, this does not mean using Canadian revenue-weights is wrong or even dubious. The matter here is one of interpretation. Consider the price index results reported below for France. These are properly interpreted as measuring overall rates of price change Canadian consumers would have experienced had proportionate movements in Canadian patented drug prices exactly matched those observed in France. (The results for CPI-relative price changes can be interpreted similarly, with Canadian CPI-relative prices matching their French counterparts.)

On the other hand, these rates may only approximate the overall rates of price change of relevance to French consumers. The accuracy of this approximation will depend on differences between Canadian and French revenue patterns.

3. RESULTS: PRICE CHANGE

Price Trends

Table 1 gives annual values for PMPI-type price indices constructed for Canada and each of the seven comparator countries, along with corresponding annual percent changes and average growth rates for selected periods. With the notable exception of the US, all countries have experienced only modest increases in overall patented drug prices over the period 1988 to 2001. This pattern persists through the more recent period of 1996 to 2001. (See Table A2 in the Appendix for more detail on price changes in individual countries.)

For comparison, Table 1 includes results on Canadian price trends previously provided by the PMPRB in its 2001 Annual Report. For both 1988-2001 and 1996-2001 the average change in Canadian patented drug prices falls squarely within the range

⁹ P. Danzon, "Cross-national Price Differences for Pharmaceuticals: How Large and Why?", *Journal of Health Economics*, 2000, pp. 159 - 195.

observed in the comparator countries. (Figure 1 represents the values for 1996-2001 in graphical form.)

CPI-Relative Prices

Table 2 gives annual values for changes in the prices of patented drugs relative to the CPI for each of the seven comparator countries. These values are obtained by simply subtracting national rates of annual CPI-inflation from the corresponding annual rates of change in Table 1.

Table 2 shows that in all countries except the US CPI-inflation has substantially outstripped movements in patented drug prices. Values reported by the PMPRB imply an average annual rate of change of -1.8 percent in the CPI-relative price of patented drugs in Canada over 1988 to 2001. These results are bracketed by the results obtained for the seven comparator countries. This relationship persists through the more recent period 1996 to 2001: Canada's average annual change of -1.8 percent in CPI-relative patented drugs prices puts it in the middle of the pack in relation to the comparator countries.

4. RESULTS: PRICE DISPERSION

In this study the term "price dispersion" refers to the amount of variation observed among prices in the seven comparator countries after conversion of these foreign prices to their Canadian-dollar equivalents.¹⁰

Table 3a gives basic statistics on international price variation. Column [2] gives the mean standardized range for the years 1991, 1996 and 2001. The standardized range at DIN-level is the difference between the highest and lowest international prices divided by the mean international price, with this quotient stated as a percentage. The mean standardized range reported in Table 3a is a simple average of DIN-level results across all drugs products. The larger this value the greater is the international variation among prices.

The mean standardized ranges reported in Table 3 imply a considerable overall degree of international price variation. The results in Column [2] imply that in 2001 the range of prices observed internationally was on average 93.6 percent of the mean international price. The results for 1991 and 1996 are similar.

The results on mean standardized range provide no strong evidence of a change in price dispersion over time. This is confirmed by results on the mean coefficient of variation (Column [3]). This measure is constructed in the same fashion as the mean

¹⁰ There were numerous instances where prices were not available for all comparator countries. Such products were still included in the analysis, with dispersion measures calculated over the available prices.

standardized range except that the standard deviation is used instead of the range to measure price variation at DIN-level.

Table 3b gives percentile distributions for maximum-to-mean and minimum-to-mean price ratios. For example, Column [1] gives the proportion of DINs where the maximum international price exceeded the mean international price by more than 10 percent. Columns [2] and [3] give the proportion of cases in which maximum exceeded mean by more than 25 and 50 percent, respectively. Columns [4]-[6] give analogous results for the minimum-to-mean international price ratios. Roughly speaking, the larger any entry in Table 3b the greater is international variation of prices. These results again provide no strong evidence of changes in price dispersion.

5. SUMMARY AND CONCLUSIONS

Recent trends in patented drug prices in Canada are bracketed by those observed among those foreign countries the PMPRB considers in its international price comparisons. Most comparator countries have seen only modest average price increases in recent years. With the exception of the US, all of these comparator countries have seen rates of increase in patented drug prices less than increases in CPI-inflation, at least when aggregate price trends are obtained using Canadian revenue-weights. Canada is not exceptional in this respect.

As for price dispersion, the above results give no evidence that international price variation has notably increased or decreased over the last decade.

Figure 1: Average Annual Percent Change, Patented Drug Prices, 1996-2001

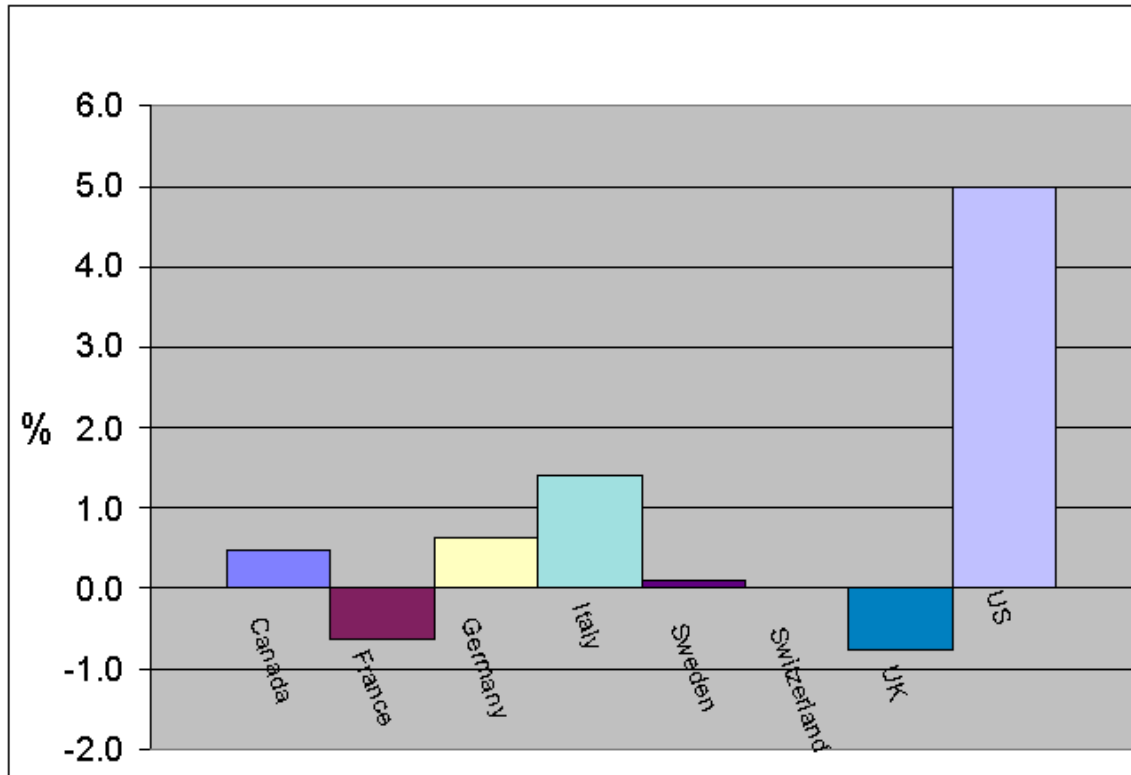


Table 1: Annual Percent Change in Patented Drug Prices, 1988-2000

	Canada	France	Germany	Italy	Sweden	Switzerland	UK	US	US (FSS)*
1988	4.1	-0.8	0.6	0.1	3.0	-2.7	2.1	6.2	
1989	1.9	7.0	3.7	6.4	1.8	6.6	6.9	6.3	
1990	2.8	0.4	-1.3	1.6	0.4	0.5	-0.9	9.6	
1991	3.9	-0.5	-1.2	5.5	1.8	2.5	1.4	7.5	
1992	2.1	-0.2	-0.2	1.1	1.2	1.0	0.1	5.4	
1993	0.1	1.2	-2.0	-0.9	1.9	2.1	3.7	5.3	
1994	-0.7	-0.5	0.2	-0.5	4.9	1.0	-0.5	4.4	
1995	-1.9	-2.2	-1.9	-5.6	3.0	-0.8	-0.1	4.5	
1996	-2.2	0.7	-1.7	3.3	0.6	-0.7	0.5	2.8	
1997	-0.1	1.2	-1.4	3.4	0.8	0.8	0.6	3.6	
1998	-0.1	0.4	1.1	3.4	0.2	-0.6	-0.3	0.8	
1999	0.2	-2.0	-0.4	-2.0	0.8	-0.3	-1.0	8.3	6.8
2000	0.4	-0.2	3.3	1.2	-0.3	0.8	-2.3	7.3	5.4
2001	0.1	-2.6	0.6	1.2	-0.9	-0.8	-0.7	5.2	5.6
Average : 1988- 2001	0.8	0.1	0.0	1.3	1.4	0.7	0.7	5.5	6.0**
Average : 1996- 2001	0.5	-0.6	0.6	1.4	0.1	0.0	-0.7	5.0	6.0**

* US prices including FSS prices. FSS prices first became available in 1998.

** Averages covering 1998-2001.

Table 2: Annual Percent Change in Relative Consumer Prices of Patented Drug, 1988-2000

	Canada	France	Germany	Italy	Sweden	Switzer -land	UK	US	US (FSS)*
1988	0.1	-3.5	-2.5	-5.0	-3.1	-4.6	-2.8	2.1	
1989	-3.1	3.5	0.9	0.1	-4.8	3.4	-0.9	1.5	
1990	-2.0	-3.2	-4.0	-4.9	-10.0	-4.9	-10.4	4.2	
1991	-1.7	-3.7	-4.8	-0.8	-7.9	-3.4	-4.5	3.3	
1992	0.6	-2.6	-5.3	-4.2	-1.4	-3.0	-3.6	2.4	
1993	-1.7	-0.9	-6.4	-5.5	-2.8	-1.2	2.1	2.3	
1994	-0.9	-2.2	-2.6	-4.6	2.5	0.1	-3.0	1.8	
1995	-4.1	-4.0	-3.6	-10.8	0.1	-2.6	-3.5	1.7	
1996	-3.7	-1.3	-3.1	-0.7	-0.2	-1.5	-1.9	-0.1	
1997	-1.8	0.0	-3.3	1.4	-0.1	0.3	-2.5	1.3	
1998	-1.0	-0.4	0.2	1.4	-0.2	-0.6	-3.7	-0.8	
1999	-1.5	-2.5	-1.0	-3.6	0.5	-1.1	-2.6	6.1	4.6
2000	-2.3	-1.9	1.4	-1.4	-1.6	-0.8	-5.2	3.9	2.0
2001	-2.5	-4.0	-1.1	-1.2	-3.6	-1.1	-1.4	3.6	4.0
Average: 1988- 2001	-1.8	-1.9	-2.5	-2.8	-2.3	-1.5	-3.1	2.4	3.6
Average: 1996- 2001	-1.8	-1.8	-0.8	-0.7	-1.0	-0.6	-3.1	2.8	3.6

* US prices including FSS prices. FSS prices first became available in 1998.

** Averages covering 1998-2001.

Table 3a: Aggregate Measures of International Price Dispersion: 1991, 1996, 2001

	[1]	[2]	[3]
	Number Of DINs	Mean Standardized Range	Coefficient of Variation
1991	442	96.0	40.2
1996	616	87.6	35.8
2001	804	93.6	36.5

**Table 3b International Price Dispersion, Percentile Distributions:
1991, 1996, 2001**

	[1]	[2]	[3]	[4]	[5]	[6]
	Max/Mean:	Max/Mean:	Max/Mean:	Min/Mean:	Min/Mean:	Min/Mean:
	> 10 %	> 25 %	> 50 %	< 90 %	< 75 %	< 50 %
1991	96.4	77.6	39.6	97.1	71.7	27.6
1996	95.1	76.3	40.1	95.6	70.9	20.1
2001	96.9	73.9	45.4	95.9	63.7	18.2

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APPENDIX 1

Table A1 provides supplemental information related to the price index results discussed in the text. Column [1] gives the number of DINs included in the base period basket of drugs for the country and year in question.¹¹ Column [2] gives the amount of net revenue accounted for by these DINs. Column [3] gives the proportion of total net revenue across all DINs in BLOCK 4 accounted for by the set of DINs included in the price index calculation. Column [4] gives the actual price index values underlying the percent changes reported in Table 1.

Table A2 gives a distribution of percent price changes for each country and year among those DINs included in the price index calculations. Column [1] gives a simple average of percent price changes across all such DINs. Column [2] gives the proportion of included DINs that exhibited no price change. Column [3] gives the proportion of DINs exhibiting price increases, Column [7] the proportion exhibiting price decreases. Columns [4], [5] and [6] give the proportion of DINs where price increases exceeded 5, 10 and 25 percent, respectively. Columns [8], [9] and [10] give the proportion of DINs where price declines exceeded -5, -10 and -25 percent, respectively.

Table A1.1: Patented Medicines Price Index, France

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	211	705		0.99
1989	209	666		1.06
1990	226	858	50.5	1.07
1991	237	1,042	52.1	1.06
1992	257	1,165	53.0	1.06
1993	286	1,395	58.1	1.07
1994	307	1,299	54.1	1.07
1995	319	1,422	54.7	1.04
1996	325	1,511	50.4	1.05
1997	365	1,682	45.5	1.06
1998	395	2,031	47.2	1.07
1999	425	2,609	48.3	1.05
2000	455	3,362	53.4	1.04
2001	471	4,059	54.1	1.02

¹¹ This is actually the number of DINs averaged over the pair of six-month periods covered by the annual value.

Table A1.2: Patented Medicines Price Index, Germany

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	272	836		1.01
1989	284	863		1.04
1990	306	1,064	62.6	1.03
1991	322	1,315	65.7	1.02
1992	331	1,483	67.4	1.02
1993	359	1,748	72.8	0.99
1994	395	1,708	71.2	1.00
1995	405	1,845	70.9	0.98
1996	422	2,008	66.9	0.96
1997	492	2,426	65.6	0.95
1998	524	2,984	69.4	0.96
1999	535	3,577	66.2	0.95
2000	577	4,325	68.6	0.99
2001	578	5,136	68.5	0.99

Table A1.3: Patented Medicines Price Index, Italy

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	188	700		1.00
1989	191	722		1.06
1990	215	839	49.4	1.08
1991	233	1,015	50.7	1.14
1992	249	1,153	52.4	1.15
1993	289	1,450	60.4	1.14
1994	312	1,463	61.0	1.14
1995	296	1,511	58.1	1.08
1996	303	1,616	53.9	1.11
1997	356	1,800	48.7	1.15
1998	401	2,410	56.0	1.19
1999	424	3,100	57.4	1.16
2000	474	3,865	61.4	1.18
2001	490	4,651	62.0	1.19

Table A1.4: Patented Medicines Price Index, Sweden

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	221	766		1.03
1989	231	768		1.05
1990	268	979	57.6	1.05
1991	281	1,128	56.4	1.07
1992	304	1,284	58.4	1.08
1993	336	1,605	66.9	1.11
1994	370	1,619	67.4	1.16
1995	397	1,760	67.7	1.19
1996	419	1,936	64.5	1.20
1997	460	2,156	58.3	1.21
1998	485	2,660	61.9	1.21
1999	499	3,111	57.6	1.22
2000	532	4,109	65.2	1.22
2001	547	4,927	65.7	1.21

Table A1.5: Patented Medicines Price Index, Switzerland

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	263	897		0.97
1989	276	931		1.04
1990	294	1,054	62.0	1.04
1991	298	1,212	60.6	1.07
1992	314	1,329	60.4	1.08
1993	334	1,601	66.7	1.10
1994	367	1,598	66.6	1.11
1995	386	1,746	67.2	1.10
1996	412	1,934	64.5	1.10
1997	451	2,188	59.1	1.11
1998	484	2,648	61.6	1.10
1999	533	3,375	62.5	1.10
2000	571	4,261	67.6	1.11
2001	590	5,092	67.9	1.10

Table A1.6: Patented Medicines Price Index, UK

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	287	918		1.02
1989	295	909		1.09
1990	323	1,079	63.4	1.08
1991	341	1,265	63.3	1.10
1992	357	1,394	63.4	1.10
1993	411	1,784	74.4	1.14
1994	438	1,809	75.4	1.13
1995	449	1,941	74.7	1.13
1996	442	2,086	69.5	1.14
1997	500	2,356	63.7	1.14
1998	526	2,908	67.6	1.14
1999	556	3,560	65.9	1.13
2000	610	4,420	70.2	1.10
2001	617	5,402	72.0	1.09

Table A1.7: Patented Medicines Price Index, US

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	316	848		1.06
1989	360	934		1.13
1990	415	1,143	62.6	1.24
1991	469	1,293	65.7	1.33
1992	501	1,408	67.4	1.40
1993	553	1,756	72.8	1.48
1994	581	1,861	71.2	1.54
1995	601	2,128	70.9	1.61
1996	624	2,319	66.9	1.66
1997	674	2,638	65.6	1.72
1998	690	3,296	69.4	1.73
1999	686	3,901	66.2	1.87
2000	721	4,847	68.6	2.01
2001	722	5,607	68.5	2.11

Table A1.8: Patented Medicines Price Index, US (FSS)

	[1]	[2]	[3]	[4]
	Number of DINs Included	Net Revenue Included (\$Millions)	Share of Total Net Revenue Included (%)	Price Index
1987				1.00
1988	686	3,901	66.2	1.11
1989	721	4,847	68.6	1.19
1990	722	5,607	68.5	1.25

Table A2.1: Distribution of Price Changes, France

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	0.5	65.3	27.2	11.7	3.3	0.2	7.5	5.0	3.6	1.2
1989	1.4	76.6	13.1	7.5	4.9	3.4	10.3	5.8	3.1	0.5
1990	-0.2	80.8	9.8	6.1	2.0	0.0	9.4	4.2	2.7	0.9
1991	0.1	79.1	11.4	5.6	3.1	0.9	9.5	5.8	3.7	1.3
1992	0.7	75.8	13.4	8.4	4.3	1.6	10.7	3.5	2.5	0.6
1993	0.3	72.7	17.2	8.8	5.1	0.7	10.1	6.3	4.0	1.5
1994	0.1	73.6	15.6	5.4	2.6	0.3	10.7	5.7	3.6	0.8
1995	-0.1	75.9	12.5	7.0	2.4	0.9	11.5	5.7	3.8	1.8
1996	0.3	78.2	12.4	5.0	2.8	0.5	9.3	4.5	1.2	0.3
1997	0.0	78.2	11.7	4.7	2.5	0.8	10.1	5.3	3.4	0.5
1998	0.3	81.4	9.3	4.1	2.5	1.4	9.3	4.9	3.0	1.1
1999	-0.6	68.4	12.0	5.2	2.8	1.7	19.6	9.7	5.5	1.8
2000	0.0	75.0	10.0	4.8	2.8	1.3	14.9	7.2	3.5	0.5
2001	-0.7	71.7	10.2	3.7	2.1	1.3	18.1	9.8	4.7	2.1

Table A2.2: Distribution of Price Changes, Germany

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Year	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	0.8	67.4	23.2	7.1	2.2	0.5	9.4	3.8	0.9	0.2
1989	2.3	63.4	25.2	15.1	10.1	4.1	11.4	7.0	4.7	1.9
1990	0.1	61.6	25.8	14.6	4.8	0.8	12.6	8.2	6.0	3.2
1991	0.8	62.8	23.8	14.0	6.4	2.2	13.4	8.3	5.1	1.1
1992	-0.1	57.6	19.6	11.7	5.3	1.8	22.8	12.8	5.6	1.8
1993	0.0	50.6	21.2	13.0	6.9	2.0	28.2	12.7	6.4	1.7
1994	0.3	70.7	15.0	5.1	3.3	1.5	14.3	6.5	3.3	0.6
1995	0.1	65.4	18.0	9.5	4.2	0.9	16.6	7.6	4.7	1.5
1996	-0.1	67.5	18.6	6.9	2.6	0.5	13.9	6.1	3.0	1.1
1997	-0.4	70.2	14.3	7.9	3.7	0.7	15.6	9.5	6.9	1.6
1998	1.3	62.3	23.4	12.2	5.7	2.5	14.3	6.0	3.5	0.5
1999	-0.7	68.3	15.8	7.6	3.8	0.8	15.9	10.4	7.5	1.9
2000	1.6	65.6	20.9	11.6	5.8	3.8	13.5	5.8	3.3	0.8
2001	-0.3	61.8	22.7	9.2	4.1	1.6	15.5	9.3	5.5	3.3

Table A2.3: Distribution of Price Changes, Italy

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	0.3	91.4	6.6	3.0	1.6	0.6	2.1	1.5	0.3	0.0
1989	1.5	76.5	12.5	9.1	7.5	4.6	11.0	6.8	5.2	0.3
1990	1.4	83.5	10.1	8.3	6.6	1.8	6.5	3.0	1.6	0.2
1991	2.7	67.3	22.7	19.5	11.4	4.9	10.0	4.9	3.4	0.7
1992	-0.2	56.9	14.1	9.1	5.0	1.4	29.0	6.4	4.2	2.4
1993	0.4	63.6	12.5	7.8	6.3	2.1	23.9	6.7	3.6	1.0
1994	0.0	58.6	24.3	13.5	7.9	1.6	17.2	10.1	7.2	3.4
1995	-1.5	44.5	18.5	12.9	6.5	1.4	37.0	21.5	11.1	4.6
1996	1.1	49.6	35.0	14.8	5.7	1.4	15.4	7.7	5.1	2.0
1997	1.2	50.4	24.2	11.7	7.2	2.4	25.4	8.4	4.9	1.1
1998	1.6	58.4	29.4	14.9	7.8	2.2	12.2	6.4	4.0	1.6
1999	-0.6	56.4	24.8	10.2	4.7	1.2	18.8	15.6	8.9	1.9
2000	1.3	63.5	25.7	12.7	7.5	2.8	10.8	6.8	4.1	1.9
2001	1.3	63.1	21.1	14.3	10.7	4.8	15.7	9.7	6.9	2.8

Table A2.4: Distribution of Price Changes, Sweden

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	1.2	50.4	40.8	6.9	2.7	1.3	8.8	3.1	0.9	0.2
1989	0.7	62.7	31.7	6.0	2.9	0.0	5.6	2.8	2.0	0.6
1990	0.5	77.3	19.0	5.8	1.3	0.2	3.7	1.5	0.7	0.2
1991	1.0	60.8	30.3	7.2	3.2	1.3	8.9	3.7	2.1	0.6
1992	0.8	56.1	30.0	9.1	4.3	0.5	13.9	3.3	2.2	1.0
1993	1.2	50.8	34.7	13.3	6.3	1.2	14.5	5.3	4.3	1.6
1994	2.8	56.0	32.6	23.1	10.3	1.8	11.3	2.9	1.5	0.3
1995	1.6	52.9	36.9	15.4	5.6	1.0	10.2	3.3	1.3	0.1
1996	0.4	61.8	26.6	9.2	2.9	0.8	11.6	4.3	3.2	1.7
1997	0.2	67.5	23.2	5.1	1.8	0.5	9.4	4.2	2.8	0.5
1998	0.0	67.8	22.2	3.8	1.5	0.3	10.0	3.5	2.1	0.9
1999	-0.1	60.6	22.4	4.8	1.7	0.5	17.0	5.5	3.0	0.4
2000	0.2	68.0	15.3	4.8	1.8	0.9	16.7	3.3	2.2	0.6
2001	0.5	58.1	32.0	4.1	2.6	1.0	9.9	3.5	2.5	1.1

Table A2.5: Distribution of Price Changes, Switzerland

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	-0.3	73.6	16.0	4.0	1.7	0.4	10.4	7.1	3.7	1.0
1989	2.1	71.8	19.4	13.2	10.1	5.5	8.9	5.9	4.5	0.5
1990	0.8	78.4	14.3	9.9	2.6	0.5	7.3	3.2	2.0	0.0
1991	1.5	70.2	21.4	16.5	5.7	2.2	8.4	5.5	3.4	0.5
1992	0.7	69.2	19.6	11.0	5.0	1.0	11.2	5.7	2.9	1.1
1993	1.2	73.0	16.9	11.1	5.9	1.2	10.0	4.1	2.7	0.3
1994	0.6	81.8	9.8	5.9	3.4	1.6	8.3	4.9	2.3	0.3
1995	0.5	71.5	15.6	10.3	4.9	1.2	12.9	8.8	4.0	1.6
1996	-0.3	74.4	14.3	5.2	2.6	0.4	11.2	5.6	3.6	2.1
1997	-0.2	76.7	13.5	5.8	2.3	0.1	9.8	4.8	3.7	1.3
1998	-0.4	81.7	6.9	3.8	2.3	0.9	11.4	6.3	4.3	1.2
1999	-0.7	72.8	10.2	6.8	2.3	0.7	17.0	9.5	7.4	1.1
2000	0.2	80.1	10.1	4.9	4.0	1.7	9.8	6.6	2.7	0.7
2001	-0.5	56.3	25.1	4.2	2.0	1.1	18.6	9.3	3.6	1.5

Table A2.6: Distribution of Price Changes, UK

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	1.5	75.1	19.8	12.6	7.8	0.2	5.1	2.5	0.5	0.3
1989	2.5	64.4	24.2	19.8	10.4	4.6	11.4	5.9	4.8	1.0
1990	0.4	81.1	12.2	7.6	3.3	0.5	6.7	2.8	1.7	0.6
1991	0.4	78.4	14.6	10.1	4.7	0.4	7.0	5.0	3.8	0.6
1992	0.8	74.8	14.1	8.9	6.2	1.9	11.1	8.9	2.4	0.8
1993	1.8	65.9	20.7	17.3	11.2	3.1	13.4	6.6	4.6	1.2
1994	0.1	57.2	21.1	8.8	3.2	1.5	21.7	7.0	3.7	1.4
1995	0.7	70.5	18.3	9.8	4.7	1.1	11.2	7.2	3.5	1.4
1996	0.4	81.3	8.1	5.8	3.8	1.1	10.7	3.2	1.8	0.3
1997	0.0	72.7	13.3	6.9	3.1	1.1	14.0	6.1	3.7	1.4
1998	-0.3	76.6	10.1	6.4	3.8	0.5	13.3	8.0	5.1	1.1
1999	-1.3	70.3	7.3	4.1	1.9	1.3	22.4	12.5	6.6	2.1
2000	0.0	78.2	8.4	4.9	3.8	1.6	13.4	8.3	3.5	0.7
2001	0.9	74.2	16.9	10.8	5.7	1.9	8.9	6.0	3.8	0.8

Table A2.7: Distribution of Price Changes, US

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1987										
1988	3.2	55.6	40.5	31.4	10.0	0.6	3.8	1.7	0.5	0.0
1989	3.1	46.8	43.2	34.0	12.7	2.9	10.0	6.9	6.4	1.8
1990	3.3	51.0	43.9	34.7	8.7	1.7	5.1	2.6	1.8	0.6
1991	3.2	52.0	40.6	32.0	7.9	2.0	7.4	3.8	2.0	0.0
1992	2.6	49.0	41.7	20.5	8.1	2.1	9.3	5.1	1.7	0.1
1993	2.6	49.4	42.6	16.5	5.7	2.0	8.0	3.8	2.0	0.4
1994	1.9	53.1	40.3	11.9	4.6	1.0	6.5	2.9	1.2	0.4
1995	1.9	57.9	36.6	14.5	5.9	1.2	5.5	2.9	2.3	0.2
1996	1.5	57.2	36.3	10.3	2.7	0.8	6.5	2.8	1.6	0.5
1997	1.5	56.9	35.7	11.7	4.5	0.7	7.4	4.7	2.4	0.4
1998	-0.3	42.3	34.9	13.6	7.2	1.4	22.9	17.3	12.9	3.0
1999	5.3	38.4	51.0	28.9	18.9	7.0	10.6	4.8	2.8	1.1
2000	2.9	53.3	39.9	19.5	11.0	2.8	6.8	3.7	2.4	1.0
2001	2.7	49.6	43.3	21.0	7.9	1.9	7.1	4.3	3.3	0.6

Table A2.8: Distribution of Price Changes, US (FSS)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Mean Price Chge.	Null	> 0%	> 5%	> 10%	> 25%	< 0%	< -5%	< -10%	< -25%
1999	5.3	38.4	51.0	28.9	18.9	7.0	10.6	4.8	2.8	1.1
2000	2.9	53.3	39.9	19.5	11.0	2.8	6.8	3.7	2.4	1.0
2001	2.7	49.6	43.3	21.0	7.9	1.9	7.1	4.3	3.3	0.6